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Maternal Childhood Sexual Trauma, Child Directed Aggression, Parenting Behavior, and the Moderating Role of Child Sex

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Abstract

Using propensity-matched controls, the present study examines the associations between maternal report of child-directed aggression and observed parenting behavior across early childhood for women with and without childhood sexual trauma histories. The moderating role of child sex was also examined. The sample (n=204) is from a longitudinal study of rural poverty exploring the ways in which child, family, and contextual factors shape development over time. After controlling for numerous factors including child and primary caregiver covariates, findings reveal that childhood sexual trauma is related to sensitive parenting behavior and child-directed aggression. Findings further revealed that child sex moderates the relation between sexual trauma history and maternal behavior towards children. Implications for interventions for mothers with childhood sexual trauma histories and directions for future study are proposed.

Keywords

Childhood sexual trauma; Child-directed aggression; Sensitive parenting; Harsh Intrusive parenting; Propensity matched design

Recent estimates suggest nearly one in every five women in the United States experience childhood sexual trauma (Briere & Elliott, 2003; DiLillo, Giuffre, Tremblay, & Peterson, 2001). Studies on the long-term sequelae associated with childhood sexual trauma (CST) suggest that it is related to numerous domains of adult interpersonal functioning, including significant problems in the parental role (Testa, Hoffman, & Livingston, 2011; Bailey,

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Compliance with Ethical Standards
All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

Conflict of Interest
All authors declare that they have no competing interests

DeOliveira, Wolfe, Evans, & Hartwick, 2012; Zvara, Mills-Koonce, Appleyard-Carmody, & Cox, 2015). A number of studies have demonstrated that women with CST histories report various parenting difficulties, including discomfort with the emotional demands of motherhood (DiLillo & Damashek, 2003) and tendency to employ physically abusive disciplinary strategies (DiLillo, Tremblay, & Peterson, 2000) and overprotectiveness (Cross, 2001). Lyons-Ruth and Block (1996) observed low-income community mothers in naturalistic interactions with their infant child and found that sexual abuse severity was the strongest correlate of affective withdrawal, including less empathy and decreased nurturance. Similarly, Douglas (2000) and Campbell (1995) found that outpatient mental health CST victims and a mixed sample of community and outpatient abuse victims, expressed significantly more discomfort with the intimate aspects of parenting, including affection and nurturance, when compared to women without a history of sexual abuse in the same settings. Additionally, Dixon and colleagues (2005) noted that within 13 months after birth, mothers in their study with CST histories were significantly more likely to be referred by home visitation nurses for maltreating their child compared to mothers without CST histories (Dixon, Browne, & Hamilton-Giachritsis, 2005).Taken together, these findings suggest that mothers with CST histories have increased degree of difficulty coping effectively with the emotional demands of child rearing. Of particular concern may be the ability of mothers with CST histories to regulate the anger and frustration that can be precipitated by the daily demands of parenting and childcare. Indeed, early work examining the long term sequelae of childhood abuse noted that appropriate expression of anger is among the most common emotional difficulties reported by women with a history of CST (DiLillo et al., 2000).

Studies addressing parenting characteristics of women with CST histories are often plagued by a variety of limitations. Methodological problems, such as using only small clinical samples or not using a control or comparison group, are further compounded by the fact that most studies use varying definitions or criteria for CST (DiLillo, 2001). In the current study, CST is defined as “the engagement of a child in sexual activities for which the child is developmentally unprepared and cannot give informed consent” (Draucker & Martsolf, 2008, p. 1034). The focus of this study is on females who were forced to engage in physical sexual contact against their will at or under the age of 14.

Furthermore, retrospective questioning of adults about their childhood experiences has been a concern in the literature (Batty, Lawlor, Macintyre, Clark, & Leon, 2005; Kreiger, Okamoto, & Selby, 1998; Mckenzie & Carter, 2009; Widom & Morris, 1997). Although recall bias is a common criticism of retrospective reports of adverse experiences in childhood, Hardt and Rutter (2004) concluded in their review that retrospective reports were sufficiently valid for research purposes. Their review points to underreporting of childhood abuse experiences, which would attenuate the association between childhood adverse experiences including CST and adult functioning. Moreover, in their study of the reliability of recall of abuse over time, Dube and colleagues (2004) reported that retrospective responses to childhood abuse and related forms of serious household dysfunction were stable over time (Dube, Williamson, Thompson, Felitti, & Anda, 2004).

CST and Parenting

Several studies suggest that mothers coping with a history of CST may find the emotional demands of parenting to be particularly overwhelming (DiLillo et al., 2000; Schuetzea & Das Eiden, 2005). This body of work posits that mothers with CST histories, who may be struggling with depression and anger related to the trauma experience, are at higher risk for using harsher, more coercive, and more punitive parental strategies than mothers without trauma histories (Mapp, 2006). Of particular concern may be the ability of mothers with CST histories to regulate the frustration that can be precipitated by children's demand for care and attention, spilling over into their parenting and disciplinary behavior.

In perhaps the only study of adult offspring, Voth and Tutty (1999) conducted structured interviews with six Canadian-born Caucasian daughters of incest victims and reported that these grown children perceived their mothers to be emotionally immature, angry, needy, and passive and that they did not act to protect their daughters or enforce household rules. These daughters observed that their mothers sometimes exploded with anger, causing them to feel guilty and, ultimately, like "bad" children. Although based on only six participants and lacking a comparison group, this study provides insight into the possible long-term repercussions for children of mothers who were sexually abused in childhood.

Interactions with caregivers represent one of the earliest and strongest influences on multiple domains of children's functioning, including social and emotional development (Borkowski, Ramey, & Bristol-Power, 2001). Variability in the type and quality of care that children receive from parents is itself determined, at least in part, from caregivers' own early experiences, such as CST.

Sensitive and harsh intrusive parenting behavior

The literature on parenting behavior and child adjustment suggests that it is the quality of the parent-child relationship that is particularly important in understanding the course of child development (Graczyk, O'Hare, & Neuman, 2000; Lovejoy, Cox & Harter, 2003; MacCoby, 2001). Greater levels of parental sensitivity/responsiveness that reflect parenting behaviors that are responsive, warm, child-centered, and/or stimulating have been linked to myriad positive outcomes in children. In contrast, controlling, harsh, and intrusive parenting, including untimely and inappropriate responses to child signals, interfere with emotion regulation development and place children at risk for poor socioemotional adjustment (Cox, & Bradley, 2003).

Aggressive discipline

A related line of research, examining the associations between aggressive discipline strategies to children's adjustment, has consistently found adverse outcomes including mental health problems, behavioral adjustment, and lower self-esteem (Berger, 2007; Larzelere, 2000; Teicher, Samson, Polcari, & McGreenery, 2006). These studies have demonstrated that power-assertive disciplinary strategies, in which parents rely on commands, physical power and punitive strategies to control their children's behavior, are associated with poor adjustment (Ladd & Pettit, 2002; Stormshak, Bierman, McMahon, &

Lengua, 2000). For example, in her meta-analysis of 88 studies that examined the effects of corporal punishment on children's behaviors and experiences, Gershoff (2002) found that corporal punishment was associated with 11 dimensions of children's short- and long-term functioning, including increased aggression and mental health problems.

Studies examining discipline practices of mothers with CST histories have reported discordant findings. Trickett, Noll and Putnam (2011) reported a direct association between sexual abuse history and punitive discipline practices. Similarly, early work by Banyard (1997) investigating the discipline practices of mothers, utilizing a child version of the Conflict Tactics Scale, reported that a history of CST was uniquely associated with increased use of physically violent punishment (e.g., "threw something at the child," "pushed or shoved," "slapped, kicked, bit or hit with fist," "beat," "used a knife or gun"), even after accounting for histories of physical abuse and neglect. However, Zuravin and Fontanella (1999) found a history of CST did not account for additional variance in implementation of physically violent punishment, beyond that of other types of childhood abuse (e.g., physical abuse).

Moderating Role of Child Sex

Despite studies linking maternal history of CST to parenting difficulties, it is not yet clear why some children are differentially affected by maternal history of CST. One likely factor is child sex. In the broader child development literature, mothers have been observed to be more controlling and harsh with boys than with girls (McKee, Roland, Coffelt, Olson, Forehand, Massari, et al., 2007; Webster-Stratton, 1996), and to display more warmth to daughters than to sons (Zhou et al., 2002), but extent of sex difference has been small (Leaper, 2002). Although the effects of CST on parenting behavior and discipline strategies have received empirical attention, little is known about the role of child sex in moderating these effects. Of the small number of studies that have examined the moderating associations of child sex on the parenting of women with CST histories, the findings were mixed. In their study of mothers with CST histories and comparison mothers, Schechter and colleagues (2002) found that mothers with CST histories reported relational disturbances, including more hostility toward daughters compared to sons. However, Kreklewetz and Piotrowski (1998) found that women in their study with self-reported CST reported greater protective behaviors towards their daughters than their sons with more recent work confirming these findings (Wright, Fopma-Loy, & Oberle, 2012).

Current Study

Given the findings highlighted above, using a propensity score matched sample, the present study addresses an important gap in the maternal sexual trauma literature by examining the associations between maternal CST, child-directed aggression, parenting behaviors, and the moderating role of child sex above and beyond the effects of maternal depression and socio-demographic factors such as income, education and race. The focus of this study is on females who were forced to engage in physical sexual contact against their will at or under the age of 14. The goals of the present study were to (1) investigate whether mothers with CST histories self-reported greater mean levels of child-directed aggression across early

childhood compared to mothers without CST histories across early childhood (ages 36 months - 60 months), (2) determine if there were group differences with observed maternal sensitive and harsh intrusive parenting across early childhood as a function of maternal history of CST (ages 36 months - 60 months), and (3) determine if these associations vary by child sex.

Method

Sample

The sample for the proposed study is drawn from the Family Life Project (FLP), a longitudinal, multi-method, multi-respondent study of rural poverty that explores the ways in which child, family, and contextual factors shape child development over time. A total of 1,292 families were recruited over a 12 month period at the time of the birth of the target children from hospitals in the selected counties. Families completed the first home visit when the family's infant was 2 months old. Participants were 58% Caucasian and 42% African American. Of these, 144 biological mothers reported that they had experienced childhood sexual trauma at or before the age of 14. Using propensity score matching procedures, a contrast group was created based on carefully chosen covariates (the procedures for the propensity matching are described in greater detail in the analysis plan). Women who experienced childhood sexual trauma (as assessed by the Trauma History Interview, Green, 1996) were matched on mothers' childhood demographic variables to a group of women (controls) who did not experience childhood sexual trauma (n=204).

Procedures

Trained research assistants collected all data during home visits. All caregivers reading at the 8th grade level or above independently completed the questionnaires, while those reading below the 8th grade level had the questionnaires read to them by research assistants visiting the home. Primary caregiver literacy was obtained through the administration of the K-FAST (Kaufman & Kaufman, 1994) at the 2-month home visit. At each visit, caregivers completed questionnaires regarding demographic variables, as well as questionnaires relating to child behavior and relationship quality, and participated in observational parent-child interactions.

The data for the proposed study were collected at varying waves of data collection. The covariates for the matching procedure were drawn from the 2-month interview. The trauma history data were collected at two different time points, either at the 36- or 60-month visit, depending on time restrictions for the visit. Mothers only completed the trauma questionnaire once. At the 36-, 48-, and 60-month visits, in addition to completing questionnaires, mother and child were video recorded in a dyadic play activity. A team of coders scored the recordings for caregiver behavior.

Measures

Trauma History Questionnaire—At either the 36- or the 60-month home visit, participants completed the Trauma History Questionnaire (THQ; Green, 1996), a 24-item self-report measure that examines experiences with potentially traumatic events, such as crime, general disaster, and sexual and physical assault, using a yes/no format. For each

event endorsed, respondents were asked to provide the frequency of the event, their age at the time the event occurred, and the nature of their relationship with the abuser. For the purposes of the proposed study, the item relating to sexual abuse/assault asked, "Has anyone ever done something sexual to you against your will, such as made you have intercourse, oral or anal sex, touched private parts of your body, or made you touch theirs, or otherwise forced you to have unwanted sexual contact?" The subsample of women who reported experiencing sexual trauma at or before the age of 14 was used in this analysis. Cronbach's alpha for the sample (before propensity score matching) of women reporting childhood sexual trauma at or before the age of 14 in the FLP (n=144) was .89.

Mothers' family of origin information—The variables for the propensity score matching were drawn from the 2-, 36-, and 60-month interviews. At the 2-month interview, mothers were asked if, when they were growing up (aged 0 – 18) any family members with whom they lived received AFDC (Aid to Families with Dependent Children), food stamps, or Medicaid or lived in public housing. They were also asked the highest grade completed by the primary mother-figure that was in their childhood home, with the scale ranging from 0 = no school to 22 = PhD, where values 0–11 indicate highest grade level completed, and values 12–22 include milestones such as obtaining a Graduate Equivalency Diploma (GED) (12), graduating from high school (14), completing a four year college degree (18), and obtaining a PhD (22). From either the 36- or 60-month interview, additional non-sexual traumas experienced in childhood (e.g., being mugged or beaten, experiencing natural disasters such as tornadoes or hurricanes) were also used in the matching procedure (i.e., Trauma History Questionnaire, Green, 1996).

Child-directed aggression—Aggressive discipline strategies were measured using a modified version of the parent-child Conflict Tactics Scale (CTSPC; Straus, 1979). When their child was 36, 48, and 60 months old, mothers completed the 20-item questionnaire reporting how often in the past year they manifested the particular behavior in response to a conflict with their child (where 0 = never and 6 = almost every day). The measure assesses how the parent reacts in a conflict with the child; (for example, yelling at or insulting the child, stomping out of the room or house, threatening or trying to hit the child). Only the 4-item physical aggression subscale was used in the current study. An example item from the physical aggression subscale reads "[how often have you] hit or tried to hit the child with something?" Twenty-eight percent of the CST mothers and 27% of NCST (no childhood sexual trauma) mothers reported they had committed at least one act of physical aggression towards their child in the previous year at the 36-month assessment. At the 48-month time point, physical aggression was reported by 38.4 % of mothers in the CST group and 21% of mothers in the NCST group. An increase of aggressive behavior was noted at the 60-month time point for both groups, with 41% of mothers in the CST group reporting having committed such aggression and 32.5% reporting the same in the NCST group.

Maternal parenting behaviors—Maternal sensitive and harsh-intrusive parenting behaviors were assessed during a series of parent-child interactions when the target child was 36, 48, and 60 months old. When the child was 36 and 48 months old, mothers and children completed a puzzle task in which they were presented with three developmentally

appropriate puzzles of increasing difficulty. Parents were told that this was a task for the child to complete, but that they could provide any assistance that they deemed necessary. All interactions lasted 10 minutes, and were digitally recorded for later coding by an ethnically diverse team of coders who were blind to other information about the families.

When the children were 60 months old, mother-child dyads were presented with two developmentally appropriate activities. The tasks included: (1) an activity involving the mother and child each building towers using wooden blocks to match a model provided; and (2) a card game called Slapjack. For the tower building task, mothers were told that this was a task for the child to complete, but that they could provide any assistance they deemed necessary. For the card task, mothers were instructed that when the card turned up was a Jack, both the mother and child were to slap the pile; the first one to slap the pile won those cards. Mothers then taught the game to their child and the mother and child played the game. The two digitally recorded episodes lasted approximately 15 minutes in total.

Using six global rating scales (Cox & Crnic, 2002; supportive presence, positive regard, detachment/disengagement, intrusiveness, stimulation of cognitive development, and negative regard) adapted from those used by the NICHD Study of Early Child Care (NICHD ECCRN, 1999), coders rated parenting behaviors on a 5 point scale (where 1 = not at all characteristic and 5 = very characteristic). Informed by an exploratory factor analysis with an oblique rotation (i.e., promax), the individual subscales were composited in order to obtain overall sensitive parenting (the mean of supportive presence, stimulation for cognitive development, positive regard, animation, and reverse scored detachment) and harsh-intrusive parenting scores (the mean of intrusiveness and negative regard).

Inter-rater reliability for the composites, assessed using Intraclass Correlations (ICCs) across each pair of coders at each time point were .90, .90, and .88 for sensitive parenting, and .85, .78, and .80 for harsh-intrusive parenting, for the 36-, 48- and 60-month time points, respectively. At each time point, coders underwent training until acceptable reliability (ICC > .80) was achieved and maintained for each coder on every scale. Once acceptable reliability was established, coders began coding in pairs while continuing to code at least 20% of their weekly cases with a criterion coder. Each coding pair met biweekly to reconcile scoring discrepancies; the reconciled, final scores were used in all analyses.

Covariates—At each visit, mothers reported information on a variety of household demographic variables, including the total household income from all possible sources, the number of individuals living in the home, the race (0 = white, 1 = black) of the target child, and the mother's highest level of completed education (in years). Income-to-needs ratios were calculated at each assessment time point by dividing the total household income from all possible sources by the federally determined poverty threshold for the number of people living in the household for that year. Income-to-needs ratios above 1.0 indicate that a family is able to provide for basic needs, whereas values below 1.0 indicate that they are not. Because income-to-needs ratios showed stability over time ($r = .68$, $p < .01$), the mean across the three assessment time points was used as a covariate in the current analyses. Studies examining the characteristics of mothers who employ harsh and physical discipline strategies have established an association involving education (Serbin & Karp, 2004) and

maternal depression (Shay & Knutson, 2008), leading us to use education and maternal depression status as control parameters. In addition to each of these demographic variables, the data collection site (North Carolina versus Pennsylvania) was used as a covariate during model parameterization in order to account for any possible differences in task administration across sites.

Data Analysis Plan

Data analysis was conducted in several steps. The first step involved conducting a propensity score matching (PSM) procedure to control for pre-existing differences between the CST and NCST (No CST history) groups. The second step of the analysis involved a repeated measure ANOVA to examine maternal aggression, sensitive parenting, and harsh intrusive parenting across time, and to investigate the moderating role of child sex.

Propensity score matching for this study followed the method developed by Rosenbaum and Rubin (1983). First, appropriate covariates were selected from which to create the treatment (CST) and comparison (NCST) samples. The covariates were chosen based on theoretical and empirical considerations. Previous research has identified factors that are associated with risk for child sexual trauma including demographic variables such as income and parental education (Butler, 2013). Children who have experienced sexual trauma often come from home environments that can be characterized as having a lack of economic resources, parents with a low level of education, and adverse environmental conditions such as social isolation (Erickson & Egeland, 2002; Ethier, Couture, & Lacharité, 2004). In the present study, childhood demographic information is defined by whether the participants' family of origin received AFDC (Aid to Families with Dependent Children), food stamps, or Medicaid or lived in public housing. Mothers' education level from the family of origin, as well as additional traumas experienced in childhood (e.g., being mugged or beaten, or experiencing natural disasters such as tornadoes or hurricanes) were also used as the matching variables. Diagnostic tests were conducted to confirm the quality of matching. Additional information is provided in the results section.

To evaluate the association between maternal CST, child sex, maternal aggression, and parenting behavior over assessment periods, we used longitudinal data analysis methods, thereby accounting for correlated observations when measures were drawn repeatedly for each individual. All analyses were conducted using an unstructured covariance matrix in Proc Mixed with the repeated option in SAS (Littell, Milliken, Stroup, & Wolfinger, 1996). The Proc Mixed model utilizes all available data for each participant. When a participant had missing information at a specific time point, the observation is missing for that time point but all other observations for that participant are retained. We constructed individual models for three dependent variables: maternal self-reported child-directed aggression, observational assessments of sensitive parenting and observational assessments of harsh intrusive parenting. For each of these dependent variables, we explored whether there were significant differences over time between CST and NCST mothers by looking at a time by group interaction term. We also examined a child sex by group interaction. In addition to these effects of interest, we also included adjustments for maternal depression, race, education, current household income-to-needs, and data collection site in the models. The longitudinal

models were used to estimate the least squared (adjusted) mean levels of maternal aggression, sensitivity and intrusiveness. To illustrate, the equation for maternal aggression was as follows:

$$\text{Maternal aggression}_{ij} = \beta 0 + \beta 1(\text{CST})_i + \beta 2(\text{time})_{ij} + \beta 3(\text{child sex})_i + \beta 4(\text{maternal depression})_i + \beta 5(\text{maternal race})_i + \beta 6(\text{income-to-needs})_i + \beta 7(\text{maternal education})_i + \beta 8(\text{study site})_i + \beta 9(\text{CST} \times \text{child sex})_i + \beta 10(\text{CST} \times \text{time})_{ij} + \beta 11(\text{error})_{ij}$$

Results

Preliminary Analyses

Matching results and balance checking for matched sample—Propensity score matching in the current study involved several steps and followed “exact match” procedures, allowing for replacements. Matching with replacements allows a given control or comparison unit to be included in more than one matched set (Hill & Reiter, 2006), and minimizes the propensity score distance between the matched comparison units and the “treatment” unit (CST mothers) by matching each unit to the nearest comparison unit, even if the comparison unit is matched more than once. The benefit of this type of matching is that it reduces bias because it does not ‘force’ a match to comparison units that may be different in terms of the estimated propensity score (Dehejia & Wahba, 2002). Therefore, in the present study, we found the closest matches between 105 of the CST mothers and 99 of the NCST mothers. Thirty-nine (39) participants did not have exact matches, and thus were not included. We further examined the demographic characteristics of the CST group before (n=144) and after (n=105) the matching procedures with regards to maternal age, race, education and income, finding no significant differences between the CST group before and after the matching procedures.

Diagnostic tests revealed that the PSM performed well at reducing the standardized mean difference with each covariate when compared to the unmatched data, meaning that, with regard to the selected covariates, the two groups (CST and NCST) were more similar to each other than with the larger sample from which the comparison groups were drawn (i.e., the full FLP sample). A second diagnostic test involved regressing all matching variables on childhood trauma history. There were no significant differences between the groups post-matching on any of these variables (Dehejia & Wahba, 2002; Hill & Reiter, 2006). This means that, based on childhood family of origin variables, the two groups were statistically not different, leaving childhood sexual trauma (yes or no) as the one differentiator among those variables considered. Detailed explanation of matching procedures, including diagnostic evidence, has been previously published (Zvara et al., 2015).

Descriptive statistics—Of the 105 women in the CST group, 12% of the women reported sexual trauma before the age of 4, 59% between the ages of 4–11, and 29% between the ages of 12–14. Approximately half of the women in the CST group reported four or more sexual trauma experiences, and 55% reported that the perpetrator was either a parent or other relative (e.g., grandparent, uncle).

The CST group was comprised of 57.1% European Americans and 42.9% African Americans, whereas the NCST group was comprised of 55.6% European Americans and 44.4% African Americans. The groups were relatively similar with regards to child sex, with 49% females in the CST group and 52% females in the NCST group. Independent sample t-tests were conducted to compare mean differences between the two groups with regards to descriptive information and found there was no significant difference between the two groups with regards to maternal age, with mothers in the CST group reporting a mean age of 25.5 (sd = 5.2) and NCST mothers reporting a mean age of 26.1 (sd = 5.4). There was also no significant mean difference between the two groups with regards to maternal education, with mothers in the CST group reporting 14.1 years of education (sd = 2.9) and mothers in the NCST group reporting 14.5 years (sd = 2.6) of education. There was, however, a significant difference in household income-to-needs (mean family income-to-needs, (M = 1.40, sd = 1.13) and (M = 2.1, sd = 2.56), t (198) = 2.53, p < .001, showing that, on average, the CST group reported significantly less current household income compared to the NCST group.

Longitudinal analysis—The next stage of the analysis was to examine the three dependent variables, child-directed aggression, sensitive parenting, and harsh intrusive parenting, across time as a function of child sex for mothers with and without CST histories. Table 1 provides least squares means and standard errors for the three dependent variables.

Child-directed aggression and the moderating role of child sex: Child-directed aggression was measured at time points: 36, 48, and 60 months. The findings revealed a significant main effect for time (F = 3.83, df = 2, 121, $p < 0.05$), but not for group (CST or NCST). There was also a non-significant interaction between time and group, suggesting that, although maternal aggression increased over time, it did not increase differentially for mothers who did and did not report childhood sexual trauma histories. We found a significant effect of child sex, (F = 4.07, df = 1, 121, $p < 0.5$), and also noted a significant interaction between CST status and child sex (F = 3.41, df = 2, 121, $p < 0.05$) in the prediction of child-directed aggression across early childhood. Closer examination of this significant interaction revealed that mothers with CST histories reported greater aggression towards their sons as compared to their daughters (see Figure 1).

Sensitive parenting and the moderating role of child sex: We next looked for differences in observed maternal sensitive parenting between abused and non-abused mothers across early childhood, and found a significant main effect for change over time (F= 2.4, df = 2, 189, $p < 0.05$), but not for group (CST or NCST); nor was there a significant interaction between time and group. This suggests that although maternal sensitive parenting changed across the assessment periods, it did not change differentially for mothers who did and did not report childhood sexual trauma histories. In addition, we noted a significant interaction between CST and child sex (F = 5.2, df = 1, 189, $p < .05$) in the prediction of maternal sensitive parenting across early childhood. Closer examination of this significant interaction revealed that mothers with CST histories were scored as being significantly more sensitive to their female children as compared to their male children, whereas NCST mothers showed

a non-significant difference between their treatment of male and female children (see Figure 2).

Harsh intrusive parenting and the moderating role of child sex: We then ran the models described above for harsh intrusive parenting. We found a significant effect for CST, suggesting that mothers with trauma histories were more harsh and intrusive in their parenting compared to NCST mothers, ($F = 3.6$, df = 1, 189, $p = 0.04$). We additionally found a significant effect for time and child sex; however, we did not find a significant interaction between maternal CST history and time, or CST history and child sex. Examination of the least squares means reveals that mothers in both the abused and not abused groups tended to be harsher towards their sons than their daughters (see Figure 3).

Discussion

This study explored the associations between maternal CST, child-directed aggression, and observed parenting behavior in a propensity matched sample of families living in rural communities. It further examined the conditions under which these associations may be more pronounced (i.e., child sex). Three research questions were examined: (1) is there an association between maternal CST and child-directed aggression across early childhood?; (2) is there an association between maternal CST and observed maternal sensitive and harsh intrusive parenting behavior across early childhood?; and (3) do these associations vary by child sex? The findings from this study reveal that sexual trauma experienced in childhood by the mother may be a significant determinant of increased risk for maternal aggression towards children, particularly for boys. Findings with observational assessments of parenting behavior further revealed that mothers reporting CST histories may be more sensitive in their caregiving towards their daughters than their sons when compared to women without CST histories.

Consistent with expectations, even after controlling for numerous covariates including the child's race, household income-to-needs ratio, maternal education, maternal depression and the data collection site, the results of the present study indicate that child sex moderates the relation between CST and maternal behavior towards children. We found the moderating association of child sex with maternal self-report of child-directed aggression and with observational assessments of sensitive parenting behavior.

With regards to child-directed aggression towards boys as compared to girls, it may be that children's behavior problems play a key role in explaining why child sex moderates this relationship. Boys, on average, tend to exhibit more externalizing behavior problems than girls, and, therefore, may be more likely to elicit greater aggressive behavior from mothers (McKee et al., 2007; Barnett & Scaramella, 2013). The potent negative feelings related to the effects of the trauma (anxiety, stress) may make mothers irritable and nervous and more likely to respond harshly to child behavior. This perspective is supported by prior research from domestic violence studies reporting that boys were more often victims of child-directed aggression than girls, and that gender differences in externalizing problems helped account for the differential levels of aggression directed at boys and girls in these families (Jouriles & Norwood, 1995; McIntosh, 2003). It may be, as reported by DiLillo et al. (2000), that

mothers with CST histories find it difficult to regulate the anger and frustration that can be precipitated by children's severe or even routine child misbehavior.

More specifically, irritability, anger, and frustration related to CST may be associated with behavioral extremes in which a mother is over-reliant on coercive techniques for managing child behavior. Girls, on the other hand, may try to behave extremely well and be compliant to maternal demands to avoid burdening an already stressed mother and, consequently, to reduce the likelihood of angry or violent outbursts. Although a practical strategy in the immediate, such compliant behaviors in the long term may precede the onset of depression and anxiety in girls. For example, in situations when the excessive compliance overshadows the development of more autonomous behavior and/or when the compliance fails to achieve the desired goal, such as relieving the distress of the caregiver. Future studies will need to examine the long-term outcomes for male and female children of mothers with CST. Given previous findings highlighting the transactional nature of parent-child interactions, future research will also need to consider child characteristics, such as behavior problems, which may elicit specific parenting behaviors (Calkins, 2002).

We also found that, compared to mothers without CST histories, mothers in our sample reporting CST histories were rated as more sensitive in their observed caregiving towards their daughters than their sons. This finding supports and extends earlier findings by Kreklewetz and Piotrowski (1998) that abused mothers demonstrated increased protective behavior toward their daughters. Subscales of our sensitive parenting measures capture a broad range of maternal behavior, including maternal attention to child cues and responding promptly to child bids for attention and care. The sensitivity noted in this study by mothers with CST histories towards their daughters may be reflective of mothers who believe that, by being attentive and responsive, they may be able to protect their daughters from sexual abuse and trauma. It may be that, for mothers with CST, being attentive and alert to their daughter's needs is a protective factor. This finding, however, also contradicts previous studies suggesting that traumatized caregivers, tending to their own affective dysregulation, may be limited in their abilities to protect their children (Cichetti & Lynch, 1995; Lyons-Ruth & Block, 1996). These discordant findings highlight the need for additional studies examining the differential parenting of mothers with CST for boys and girls.

Although we found a significant effect for CST on harsh intrusive parenting behavior over time, we did not find a significant difference between the two groups with regards to child sex. It is likely that all mothers in this low-income sample, struggling with economic pressures and isolation due to rural settings, may have been rated as more harsh and intrusive in their caregiving behavior. It is also likely that our sample for the current study may not have been powered enough to detect group differences in this high risk, low-income sample. Future research with larger samples may allow researchers to tease apart the effects of income, rurality, and childhood maltreatment.

Strengths and Limitations

The many strengths of this study include the large sample size and longitudinal design. This research highlights the complex nature of relationships between maternal history of CST and parenting behaviors, and helps illuminate factors important for understanding why certain

children are more often targets of aggression in families characterized by women with trauma histories. Importantly, the findings from this study reveal differences in self-report of child-directed aggression and observed parent behavior depending on child sex. However, the question of why child gender moderates the association between CST and child-directed aggression requires further examination.

Although there are a growing number of studies that investigate the long-term sequela of CST in community samples, less is known about these relationships in low-income, rural samples like the one used in the current study. Studying the parenting behaviors of women with CST histories in rural, low-income communities may be particularly important, both because individuals living in rural areas have been shown to be at heightened risk of parental insensitivity and a lower motivation to actively engage with their children (Corapci & Wachs, 2002; Evans et al., 1999; Johnson et al., 2008), and because women in rural communities may have less access to social and mental health services compared with women in more urbanized areas (Mulder & Lambert 2006; Simmons & Havens, 2007).

Despite the many strengths of this study, several limitations should be noted. As with most studies of childhood adverse experiences, and particularly with sexual victimization, the current study relies on a self-reported measure of sexual trauma as recalled years after the event. Researchers have expressed concern that the passage of time may distort recollections of the experience (Dube et al., 2004; Hardt & Rutter, 2004). For example, if an individual who has experienced sexual trauma is assigned to a non-trauma control group while someone who did not experience the trauma is classified as having the trauma, then these false negatives and false positives will obscure distinctions between women who have and have not experienced childhood sexual trauma (Briere & Elliott, 2003).

Furthermore, we relied on maternal retrospective recall to characterize their childhood sociodemographic characteristics, which played an important role in selecting a group of comparison families. Although it could be argued that many adults may not be aware, much less be able to recall, their families SES status or highest grade completed by their mothers, early work by Krieger and colleagues (1998) supports the validity of adult recall of measures of childhood socioeconomic factors in childhood, including parental education (Batty et al., 2005; Krieger et al., 1998; Mckenzie & Carter, 2009). In addition, although we used numerous variables from the family of origin for the matching procedure, we did not account for all of the potential confounders that might have been relevant to subsequent parenting of victims, such as family dysfunction in the women's family of origin (e.g., parental marital conflict, mental health, or substance use). Importantly, PSM techniques have been associated with causal analysis in the literature, but interpreting these estimates as causal hinges on the assumption that there are no omitted variables in the PSM stage (Imai, Keele, & Tingley, 2010). Thus, the findings from this study must be interpreted as correlational in nature.

Implications

The results from this study suggest the need for mental health professionals to consider that sexually abused mothers may experience greater difficulties managing anger toward their children, particularly sons. The preventive and intervention efforts of practitioners should

focus on enhancing positive parenting skills and discipline strategies, improving mother's mental health by offering referrals and counseling services, such as anger management, and assisting families in forming positive relationships (i.e., support networks). Further, the findings of this study suggest that interventions for children of mothers reporting CST may need to consider child sex in their strategies.

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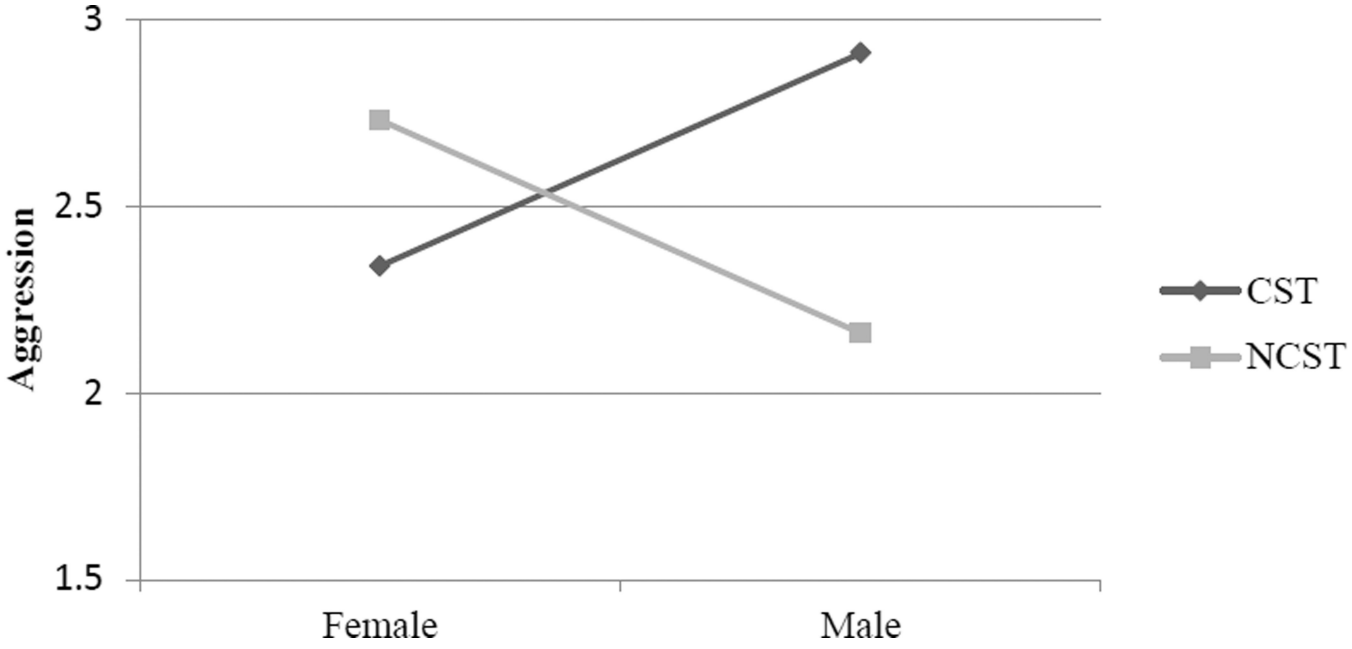

Figure 1.
Child directed aggression and the moderating role of child sex

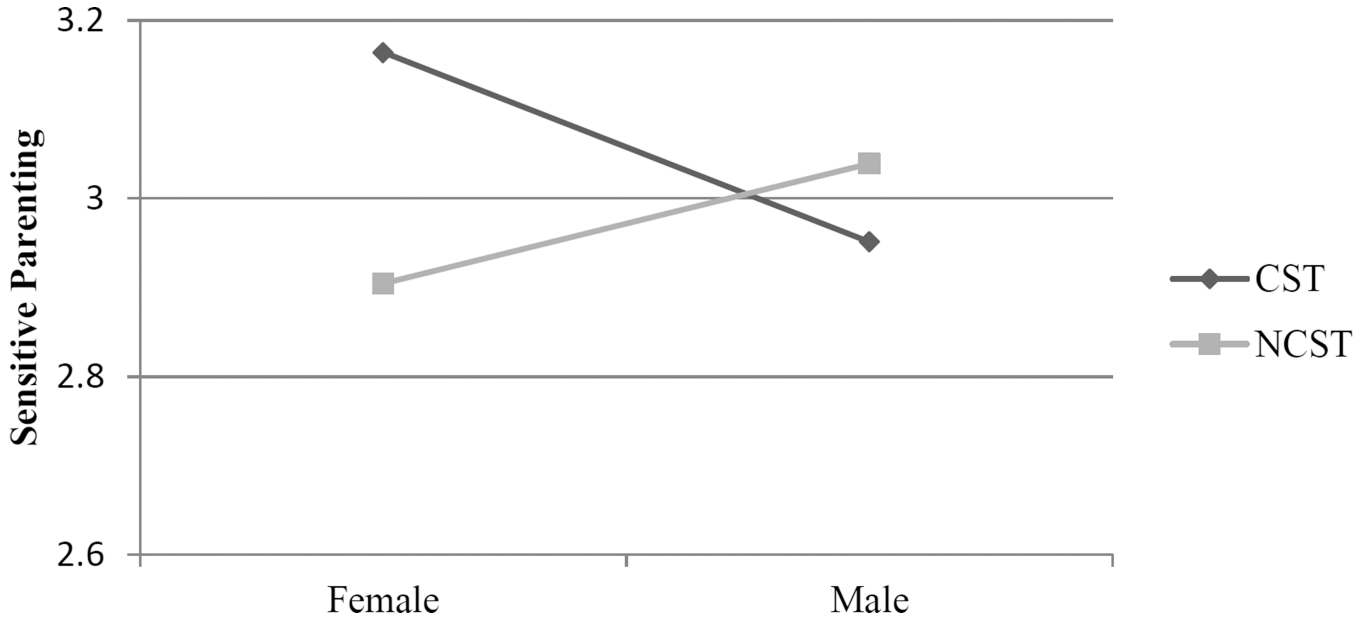

Figure 2.
Sensitive parenting and the moderating role of child sex.

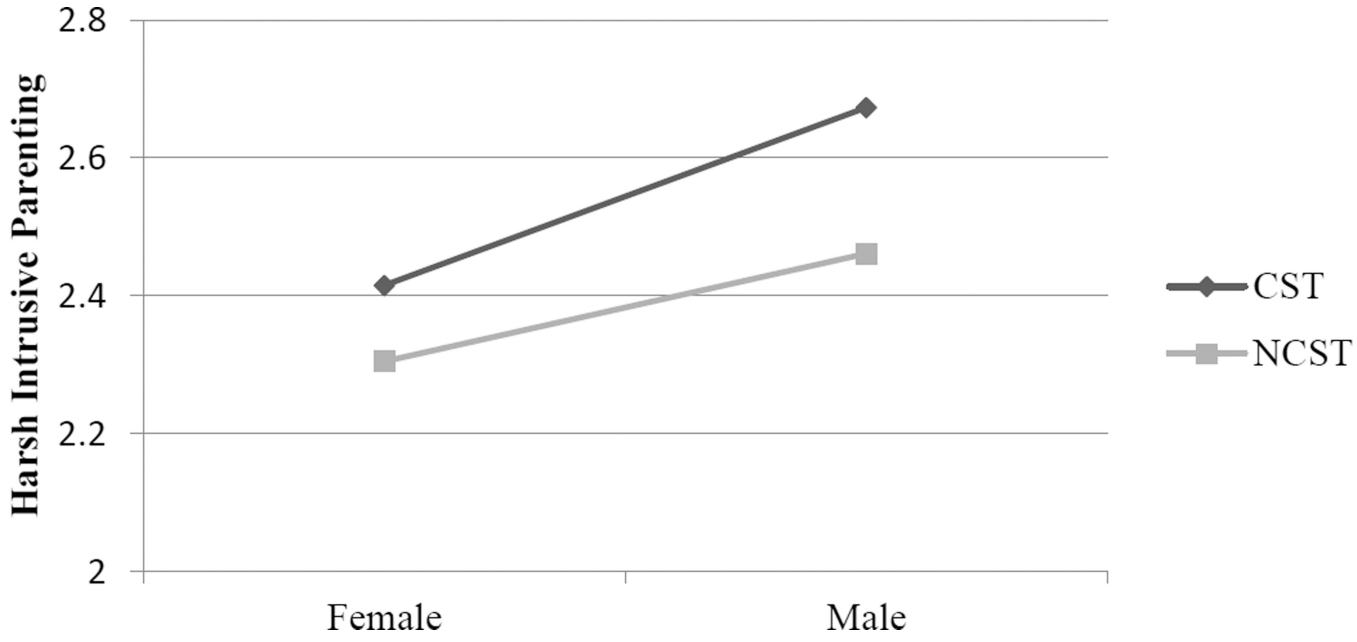

Figure 3.
Harsh intrusive parenting and the moderating role of child sex.

Table 1

Least Squares means among variables of interest

Outcome	CST		NCST		Interaction
	Female Child	Male Child	Female Child	Male Child	P-value
Aggression	2.34 (0.35)	2.91 (0.33)	2.73 (0.35)	2.16 (0.34)	0.04
Sensitive Parenting	3.16 (0.09)	2.95 (0.09)	2.90 (0.09)	3.04 (0.09)	0.02
Harsh Intrusive Parenting	2.41 (0.10)	2.67 (0.09)	2.30 (0.09)	2.46 (0.09)	0.11

Note: means adjusted for maternal depression, race, education, household income-to-needs, and data collection site.